

PENDING CLAIMS

1. (Amended) A micromirror device comprising:
a reflecting element that can be deflected into at least 2 states; and
a support structure other than a post for supporting said reflecting element, said support structure comprising at least 1 wall, wherein said support structure is sufficient to support said reflecting element and said support structure is in direct contact with said reflecting element.
2. The device of claim 1, wherein said reflecting element comprises at least 1 metallic layer.
3. The device of claim 1, wherein said reflecting element comprises at least 1 semiconductor layer.
4. The device of claim 1, wherein said reflecting element comprises a plurality of dielectric layers.
5. The device of claim 1, wherein the reflective surface of said reflecting element is substantially planar with neither depressions nor protrusions.
6. The device of claim 1, wherein the reflective surface of said reflecting element has no outer edges that are perpendicular to the projection of the incident light propagation vector onto the plane of said reflective surface.
7. The device of claim 1, wherein said at least 1 wall is oriented such that the angle between the projection of the incident light propagation vector onto the plane of the reflective surface of said reflecting element and a wall segment of said at least 1 wall is between 0° and 75°.
8. (Amended) The device of claim 7, wherein said angle is between 0° and 60°.
9. (Amended) The device of claim 7, wherein said angle is between 0° and 45°.
10. (Amended) The device of claim 1, comprising: a first layer that contains said support structure; and a second layer that contains said reflecting element.
11. The device of claim 1, wherein said support structure comprising at least 1 wall comprises a material selected from the group consisting of: polycrystalline silicon, monocrystalline silicon, amorphous silicon, Al, Al alloy, Mo, W, TiSi₂, WSi₂, CoSi₂, Ti:W, TiN, and Cu.
12. The device of claim 11, wherein said polycrystalline silicon is doped.
13. The device of claim 11, wherein said monocrystalline silicon is doped.

14. (Amended) A micromirror device comprising:
a reflecting element that can be deflected into at least 2 states;
a support structure other than a post for supporting said reflecting element, said support structure comprising at least 1 wall, wherein said support structure is in direct contact with said reflecting element; and
a deformable element that is connected to said support structure.
15. The device of claim 14, wherein said deformable element is a torsion hinge.
16. The device of claim 14, wherein said deformable element comprises a crystalline semiconductor material.
17. The device of claim 16, wherein said crystalline semiconductor material is selected from the group consisting of polycrystalline silicon and monocrystalline silicon.
18. The device of claim 16, wherein said crystalline semiconductor material is doped.
19. (Amended) A micromirror device comprising:
a reflecting element that can be deflected into at least 2 states;
a 1st support structure other than a post for supporting said reflecting element, said 1st support structure comprising at least 1 wall, wherein said 1st support structure is sufficient to support said reflecting element and said 1st support structure is in direct contact with said reflecting element;
a torsion hinge that is connected to said 1st support structure; and
a 2nd set of support structures that is different than said 1st support structure for supporting said torsion hinge, said 2nd set of support structures defining an axis of rotation of said torsion hinge.
20. The device of claim 19, wherein each of said 2nd set of support structures comprises at least 1 portion for limiting the deflection of said reflecting element.
21. The device of claim 19, wherein said 2nd set of support structures comprises support structures selected from the group consisting of: triangular structures, polygonal structures, walls, elliptical structures, and circular structures.
22. The device of claim 19, wherein said 2nd set of support structures comprises a material selected from the group consisting of:
polycrystalline silicon, monocrystalline silicon, amorphous silicon, Al, Al alloy, Mo, W, TiSi₂, WSi₂, CoSi₂, Ti:W, TiN, and Cu.
23. The device of claim 22, wherein said polycrystalline silicon is doped.
24. The device of claim 22, wherein said monocrystalline silicon is doped.
25. The device of claim 19, wherein said torsion hinge comprises a crystalline

semiconductor material.

26. The device of claim 25, wherein said crystalline semiconductor material is selected from the group consisting of polycrystalline silicon and monocrystalline silicon.

27. The device of claim 25, wherein said crystalline semiconductor material is doped.

28. (Amended) A micromirror device comprising:

a reflecting element that can be deflected into at least 2 states;

a 1st support structure other than a post for supporting said reflecting element, said 1st support structure comprising at least 1 wall, wherein said 1st support structure is sufficient to support said reflecting element and said 1st support structure is in direct contact with said reflecting element;

a deformable element that is connected to said 1st support structure;

a 2nd set of support structures that is different than said 1st support structure for supporting said deformable element; and

a base layer for supporting said 2nd set of support structures, said base layer having a 1st surface and a 2nd surface, with said 1st surface facing said reflecting element.

29. The micromirror device of claim 28, wherein said base layer comprises a crystalline semiconductor material.

30. The micromirror device of claim 29, wherein said crystalline semiconductor material is selected from the group consisting of polycrystalline silicon and monocrystalline silicon.

31. The device of claim 28, wherein said base layer additionally comprises addressing electrodes for actuating said reflecting element.

32. The device of claim 28, wherein said base layer additionally comprises addressing electrodes for actuating said deformable element.

33. The device of claim 28, wherein said base layer additionally comprises control circuitry.

34. The device of claim 33, wherein said control circuitry is disposed on said 1st surface of said base layer.

35. The device of claim 33, wherein said control circuitry is disposed on said 2nd surface of said base layer.

36. The device of claim 33, wherein said control circuitry is selected from the group consisting of: CMOS circuits, NMOS circuits, PMOS circuits, bipolar transistor circuits, BiCMOS circuits, DMOS circuits, HEMT circuits, amorphous silicon thin film transistor circuits, polysilicon thin film transistor circuits, SiGe transistor circuits, SiC transistor circuits, GaN transistor circuits, GaAs transistor circuits, InP transistor circuits, CdSe

transistor circuits, organic transistor circuits, and conjugated polymer transistor circuits.